



Patent Docket No. 3240.1

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Warrington, et al.

Examiner: Diana B. Johannsen

Serial No: 09/693,204

Group Art Unit: 1655

Filing Date: October 19, 2000

Title: Methods For Identifying And  
Using Maintenance Genes

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JUN 13 2002

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Commissioner for Patents  
Washington, D.C. 20231

**RESPONSE TO OFFICE ACTION**

Dear Sir:

In response to the Office Action dated December 5, 2001, Applicants request that the Examiner enter the following amendment and consider the following remarks and withdraw the present rejections. Applicants respectfully petition for a 3-month extension of time within which to respond to the outstanding Office action.

IN THE SPECIFICATION

Please amend the specification (page 10, second paragraph) as follows:

In another aspect of the invention, a subset of genes expressed at the same level in each of seven major tissues are identified as housekeeping genes (See, Table 1). Most of these genes have never before been specifically identified as belonging in this category. This information is useful for establishing average normal expression levels and will be useful as a reference in studies of normal expression variation. In one aspect of the invention, the maintenance genes described are used to establish average normal

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expression levels. In some embodiments, the expression of at least one of the genes listed in table 1, preferably at least two of the genes listed in table 1, more preferably at least 10 of the genes listed in table 1, and even more preferably at least 100 of the genes listed in table 1 is monitored along with the expression of a target gene (gene of interest). The change of the level of expression of the target gene will be evaluated using the expression of the maintenance gene(s) as a control.

IN THE CLAIMS

Please cancel Claims 1-9 without prejudice. Applicants plan to pursue the canceled claims in a continuation application.

Please add new Claim 13 as follows:

13. (New) A method for comparing the expression of a gene in a plurality of biological samples comprising:

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measuring the expression of at least three maintenance genes selected from the group consisting of: Profilin, Thymosin beta-4 mRNA, Prothymosin alpha, mRNA (ProT-alpha), Actin depolymerizing factor, Adducin gamma subunit Myosin regulatory light chain, Non-muscle type cofilin, Myeloid cell differentiation protein (MCL1), ATP synthase subunit c encoded by P1 ATP synthase alpha subunit, Vacuolar ATP synthase subunit AC45 precursor ATP synthase gamma-subunit (L-type), ATP synthase beta subunit, Mitochondrial ATPase coupling factor 6 subunit (ATP5A), NaK-ATPase beta-1 subunit, Sodium/potassium-transporting ATPase beta-3 subunit, H<sup>+</sup>-ATP synthase subunit b, ATP-citrate lyase, ATP synthase, Vacuolar-type H<sup>(+)</sup>-ATPase 115 kDa subunit, AQP3 aquaporine 3 (water channel), and Voltage-dependent anion channel isoform 1 (VDAC); and comparing said expression of said gene in said plurality of samples using the expression of said at least three maintenance genes.

Please amend Claims 10 and 12 as follows:

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10. (Amended) The method of Claim 13 wherein said at least three maintenance

genes comprise at least five maintenance genes selected from said group.

12. (Amended) The method of Claim 13 wherein said comparing comprises

calculating expression ratio of said gene over said maintenance genes.

### REMARKS

The specification has been amended to delete hyperlink code. Claims 1-9 are canceled without prejudice. Applicants reserve the right to pursue the canceled Claims in a related application. Claims 10-12 have been amended. New Claim 13 has been added to replace Claim 9.

#### A. Objection to the Disclosure

The specification is objected to because it contains a hyperlink. Applicants have amended the specification to remove the hyperlink. Therefore, this objection to the specification is obviated.

#### B. Claim Rejection under 35 U.S.C. § 112

Claims 1-8 are rejected under 35 U.S.C. § 112 for being allegedly indefinite. Applicants respectfully disagree with the Examiner. However, for the purpose of expediting the issuance of other Claims, Claims 1-8 have been canceled without prejudice. Therefore, this rejection of Claims 1-8 is obviated.

Claims 9-12 are rejected under 35 U.S.C. § 112 for being allegedly indefinite. The Examiner alleges that Claims 9-12 are indefinite for failing to recite a final step that clearly relates back to the claim preamble. The Examiner also rejected Claims 9-12 because of inappropriate alternative form. Applicants have replaced Claim 9 with new Claim 13 which recites "comparing" and an appropriate Markush group. Claims 10-12 are also amended.

The Examiner also alleges that the list of maintenance genes set forth in Claim 9 is not clear and definite because database entries are periodically updated and change

over time. While it is true that the database contents are periodically updated and change over time, the accession number is allocated when the record is first entered into the database, and will never be changed. However, for the purpose of expediting the issuance of claims, applicants have replaced claim 9 with new Claim 13 which does not recite accession number. Applicants respectfully submit that the genes recited in Claim 13 are uniquely identifiable by their product name (protein or mRNA) and are not indefinite. Therefore, the rejection of Claims under 35 U.S.C. § 112 is obviated.

C. Claim Rejection under 35 U.S.C. § 102

Claims 9-12 are rejected under 35 U.S.C. § 102 as allegedly being anticipated by MacLeod et al. (U.S. Patent No. 6,221,600, hereafter referred to as "MacLeod"). Applicants respectfully disagree with the Examiner. However, for the purpose of expediting the issuance of claims, Applicants have replaced Claim 9 with new Claim 13 which recites genes that are not disclosed by MacLeod. Therefore, this rejection of Claims under 35 U.S.C. § 102 is obviated.

D. Claim Rejection under 35 U.S.C. § 103(a)

Claims 1-8 are rejected under 35 U.S.C. § 103 for allegedly being unpatentable over MacLeod and Chen et al (U.S. Pat. No. 6,245, 517). Applicants respectfully disagree with the Examiner. However, for the purpose of expediting the issuance of other claims, Applicants have canceled Claims 1-8 without prejudice. Therefore, this rejection of Claims is obviated.

CONCLUSION

For the foregoing reasons, Applicants believe all the pending claims are now in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 731-5699.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account 01-0431.

I hereby certify that this correspondence is being deposited by  
Express Mail to: Commissioner For Patents, Washington, D.C.  
20231.

On June 5, 2002

Express Mail No.: EL 675 507 849 US

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By: 

Respectfully submitted,



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